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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/526,696

11/10/2005

Jun-Hyeak Choi

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EXAMINER

ASINOVSKY, OLGA

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/526,696	<b>Applicant(s)</b> CHOI ET AL.	
	<b>Examiner</b> OLGA ASINOVSKY	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-11 is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/03/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faust U.S. Patent 4,248,958 in view of Fukagai et al U.S. Patent 4,822,705.

The claimed invention can include the photopolymerizable oligomer represented by any compound of formulas I to IV **or** of any compound of formulas V to VIII.

Faust discloses a photopolymerizable resin composition including a polymeric binder which is soluble in aqueous-alkaline solution (column 3, lines 17-18), a photopolymerizable compound such as polyethyleneglycol-diacrylate (column 6, line 44), a photoinitiator (column 7, line 27) and an additive such as plasticizers (column 6, lines 7-36 and column 7, line 42). The binder content is in the range from 20 to 80 wt.% based on the non-volatile components of the mixture, column 6, lines 2-5. Thus, the weight ratio of the aqueous alkali-soluble polymer compound in the amount of at least 5% is readable in **the present claim 2**. The photoinitiator is present in the range from 0.1 to 10 wt.% based on the total non-volatile components of the mixture, column 7, line 38, **for the present claim 3**. The plasticizers are added in a quantity of up to 30 wt%, column 6, lines 7- 36, **for the present claim 4**.

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Faust does not disclose the claimed photopolymerizable oligomer.

Faust does not specify plasticizers in the present claim 5.

Fukagai discloses an electrophotographic photoconductor comprising photosensitive polymer of a monomer having formula (I) wherein  $R^2$  can include alkyl substituted aryl group such that polyalkylene glycol is readable in **the present claim 1, formula I**, wherein the oxyethylene units of 25 is overlapped in an integer range from 1 to 30, column 11 (third structure). Fukagai discloses plasticizers such as dibutyl phthalate and dioctyl phthalate, column 47, line 11.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a photopolymerizable mixture in Faust invention for producing a photopolymerizable resin composition wherein said photopolymerizable mixture is modified by including photopolymerizable oligomer of formula (I) by teaching in Fukagai invention for the purposes to increase light-sensitive transfer property of the resulting photoconductive material.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a photopolymerizable mixture in Faust invention for producing a photopolymerizable resin composition wherein plasticizer of formula (II) at column 6 is substituted with a plasticizer such as, for example, dibutyl phthalate in Fukagai invention for the purposes to improve flexibility of the resulting layer, wherein said plasticizer is readable in the present claim 5.

***Allowable Subject Matter***

3. The following is a statement of reasons for the indication of allowable subject matter: Claims 6-11 are allowable. The claimed invention is a photopolymerizable resin composition comprising an aqueous alkali-soluble polymer compound, a photopolymerizable oligomer, a photoinitiator, and an additive and wherein the photopolymerizable oligomer comprising a mixture of a polyalkylene glycol mono(meth)acrylate compound, a polyalkylene glycol di(meth)acrylate compound, at least one of urethane compound having a terminal (meth)acrylate group of the formula IX.

The closest reference is still Faust Patent 4,248,958 that has been discussed above. In addition to Faust reference discloses a polyurethane compound of formula I at column 3, lines 25-30 having at least 4 urethane groups in the molecule, column 4, line 4. Faust does not disclose (meth)acrylate terminated polyurethane compound represented by the formula IX in the present claim 6. Faust does not disclose photopolymerizable compound represented from formula I to formula IV.

Other closest reference is U.S. Patent 5,776, 995 to Obiya et al. (Patent 5,776,995 belongs to Patent Family to EP 770,923 cited by applicants). Obiya discloses urethane (meth)acrylate compound containing at least two (meth)acryloyl groups. Reference does not disclose the claimed formula IX having at least four urethane units. Also, Obiya does not disclose the claimed two photopolymerizable oligomers in the present claims 6-11.

There is no motivation to combine the teachings of the cited references for obtaining the claimed photopolymerizable resin composition.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Closest references have been considered. Other reference U.S. Patent 5,919,569 does not disclose the claimed photopolymerizable oligomers specified in the formulas I to VIII nor the polyurethane compound in the formula IX.
5. EP 1 324 139 belongs to Patent Family to U.S. Patent 7,267,914 to Yamanami et al. Yamanami discloses an electrophotographic photoconductor comprising polyethyleneglycol monocarboxylic acid esters and polyethyleneglycol dicarboxylic acid esters. There is no claimed polyurethane compound having formula IX in the present claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLGA ASINOVSKY whose telephone number is (571)272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Olga Asinovsky  
Examiner  
Art Unit 1796

July 06, 2008

/Randy Gulakowski/

Supervisory Patent Examiner, Art Unit 1796